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THE PLANT DISEASE REPORTER

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The Plant Disease Survey

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BUREAU OF PLANT INDUSTRY

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THE PLANT DISEASE REPORTER

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THE PLANT DISEASE SURVEY

Vol. VIII November 1, 1924 Number 10

POTATO SCAB

With the digging of the potato crop the prevalence of scab is being ascertained. Notes on scab have recently been received from three important potato states.

New York: The following results were obtained from the potato inspections:

Number of fields	Variety	Acres	Percentage scab
40	Cobbler	190	6.08
166	Green Mountain:	733.37	12.5
33	Russet Rural	156	1.8
47	Smooth Rural	286.75	5.3

(Chupp, Oct. 15)

Michigan: Generally reported worse than previously. H. C. Moore reports marked resistance shown by Russet Rurals. Certain areas in Oakland County showed high percent scabby tubers. (Coons, Oct. 15)

Kansas: Scab very bad in the western end of the Kaw Valley this year, especially in Shawnee County. An interesting correlation between scab and precipitation was found. All potato counties were running below normal up to June. In June all counties except Shawnee received their normal or above normal amount of rainfall, but Shawnee was 2.84 inches below normal. In Shawnee we had an epidemic of scab. (White, Oct. 15)

LATE BLIGHT AND ROT OF POTATOES

Reports on late blight of potatoes in Maine, Vermont, and Michigan are given below. Similar statements are needed from other late potato states.

Maine: In check plots with some foliage infection in every hill, no rot was found at digging. These plots yielded 99% as well as the sprayed plots (each series triplicated). The dusted plots yielded about the same. No complaints of rot have come in from growers. (Folsom, Oct. 15)

Vermont: There has been some late blight in unsprayed fields with resulting rot, but practically none in certified fields. (Gilbert, Oct. 1)

Michigan: Reported from Antrim, Montcalm, Kent, and Alpena Counties. Extent not known. (Coons, Oct. 15)

RHIZOCTONIA ON POTATOES

Several states have reported this fall on the vine and tuber injury caused by Rhizoctonia.

New York: The following results were obtained from the potato inspections:

Number of fields	Variety	Acres	Percentage of Rhizoctonia
40	Cobbler	190	2.6
47	Smooth Rural	286.75	1.0
33	Russet Rural	174.53	.5
166	Green Mountain	733.37	1.7

(Chupp, Oct. 15)

Kentucky: Mr. Gardner reports that what appears to be shank injury due to Rhizoctonia appeared on the second crop of potatoes this year for the first time in his experience. It is common in first crop of potatoes. The relatively low soil temperature may account for it this year. (Valleau, Oct. 15)

Minnesota: Causes a great deal of vine injury and the production of aerial tubers. Damage about 2%. (Plant Path. & Botany) Sept. 1)

Iowa: Common over Iowa. Severe damage as a rule. (Porter, Aug. 15)

South Dakota: A small amount in all fields. No great damage has been observed or reported. (Evans, Aug. 1)

Losses, as in previous years, high. Data on fields in eastern half of state, visited personally, indicate 10 to 30% loss. (No adequate control measures seem to be taken at present.) (Petry, Sept. 1)

Nebraska: No apparent damage in field. (Goss, Sept. 1)

Kansas: No worse this year than usual. About 30 bushel per acre increase in yield obtained by seed treatment. Causes about

75% of the annual loss to potatoes in the state attributable to plant diseases. (White, Oct. 15)

Washington: Rhizoctonia can be found in any field but it is of very minor importance compared with mosaic and related diseases. (Dana, Sept. 1)

EARLY BLIGHT OF POTATOES

New Hampshire: Since the middle of August we have had rain and sticky weather and as a consequence early blight on potatoes has been destructive especially in the southern part of the state. (Butler, Sept. 16)

Kentucky: This disease has not been severe this fall due to a long dry period in September. (Valleau, Oct. 15)

Arkansas: Quite common, but not causing serious damage. (Rosen, Oct. 15)

Michigan: Very late in developing. Damage very small. (Coons, Oct. 15)

South Dakota: Present in considerable amounts over eastern part of state. Damage undetermined, but a few fields seen may have been appreciably damaged. (Petry, Sept. 1)

POTATO MOSAIC

Vermont: Smaller percentages of this disease are being found in certified fields due to the planting of relatively disease-free strains. (Gilbert, Oct 11)

Arkansas: Very common and as serious as usual. Mottling usually obscure but leaf-rolling and puckering and stunting of plants are common symptoms. (Rosen, Oct. 15)

Ohio: Considerable mild mosaic and some rugose is showing up in fields planted from poor, run-out seed. (Tilford, Sept. 1)

South Carolina: Not noted in any planting but present in some volunteer plants now growing near a small greenhouse on the campus of Clemson College. (Ludwig, Oct. 15)

SPINDLING SPROUT OF POTATO

Attention is called to an error in an earlier number of this publication (Plant Disease Reporter 8: 103, October 1, 1924) under the heading Spindle Sprout of Potato. The statement is made that it is very common in fields from

uncertified seed in Ohio. This note, however, refers to spindle tuber, an entirely distinct disease, and not to spindling sprout. Readers will please make this correction in their copies.

Under the same heading there is also a report from Michigan and since this condition is not often described as occurring in the field further details concerning the Michigan situation have been secured. J. E. Kotila writes as follows under date of October 16:

> "The symptoms shown in this case were an abnormal number of weak sprouts (8 to 12 or more) giving the hills a sort of a symetrical, bushy appearance. The leaves too, were abnormal in that the leaflets had a tendency to be heartshaped.
>
> "We have recognized this spindling sprout disease for several years as being distinct from the spindling sprout due to storage conditions as described by Stewart, and know that it is carried from year to year in the tubers. In fact we have had the same stock in our potato disease plots for at least three years and it has shown the same symptoms each year. None of the tubers harvested from the lot last year were of marketable size.
>
> "Our spindling sprout is probably the same as witches broom of Hungerford and Dana as reported in Phytopathology 14: No. 8, Aug. 1924."

The question arises as to whether or not spindling sprout should be considered as a distinct disease of potato either in storage or in the field. Concerning the matter M. F. Barrus of New York expresses himself as follows in a letter of October 7:

> "Spindling sprout was described by Stewart and Sirrine in New York (Geneva) Agr. Exp. Sta. Bulletin 399, 1915, as the production of slender needle-like sprouts by the tuber in the spring. They thought that high temperature during the growing season was a factor in the production of such sprouts and more recent observations by others have indicated that tubers affected with Fusarium wilt or with leaf roll may produce spindling sprouts, as was also described by Stewart and Sirrine.
>
> "It seems to me that the term "spindling sprout" is the name of a symptom. It is true that Stewart and Sirrine proposed the name "spindling sprout disease" but since the symptom of spindling sprout may occur in at least two diseases, it appears better to restrict the term to a symptom name."

It seems to us that this opinion, just expressed, is right and that the condition of spindling sprout should be regarded as a symptom that may arise

from a variety of causes rather than as a definite disease in itself.

WESTERN YELLOW BLIGHT OF TOMATOES DESTRUCTIVE IN UTAH AND CALIFORNIA

Yellow blight of tomatoes has been destructive this year in the western states. Information concerning the situation this year is given in an earlier number of this publication (8: 68-70, Sept. 1, 1924) and in the following notes:

Utah: Final field observations in the counties of Boxelder, Weber, Davis, Utah, and Salt Lake, together with estimates of canning company officials indicate that the loss from western yellow blight this year will range between thirty and thirty five percent of the state crop. Fields were commonly observed during the growing season in which thirty and forty percent of the plants were diseased. Occasionally fields exhibited a loss of as high as 75% of the plants. Relatively few fields were found where the number of plants diseased remained below ten percent.

From the most reliable reports obtained it is evident that the disease this year is by far the most serious since the epidemic of 1905 and far exceeds the average annual distribution of the disease in the state. The destruction is undoubtedly intensified by the exceptional climate conditions, characterized by low precipitation, the low relative humidity and the high wind velocity.

A close correlation was found to exist between the severity of the disease and the soil type. The more severe attacks occurred on light sandy or gravely soil. (Richards)

California: Western blight has developed in some fields in Santa Clara and Sacramento Valleys during the second part of the summer to the extent of about 25%. There appeared also a mottling of the fruit usually associated with mosaic, which showed in various parts of the state and in some fields affected more than half of the crop. (Shapovalov, Oct. 18)

UTAH TOMATO DISEASES

During July and August B. L. Richards, of the Utah Experiment Station, visited a large number of tomato fields in the counties of Boxelder, Weber, Davis, Utah, and Salt Lake. A summary of his observations on the western yellow blight is given above, and herewith are his statements concerning mosaic, and Fusarium wilt.

"Tomato mosaic was found this year rather generally distributed throughout the tomato growing districts of Boxelder, Weber,

Davis, and Salt Lake Counties. Only occasionally, however, were the more extreme forms of the disease encountered, although the general distribution of the trouble and the high percentage of the plants diseased indicates that the loss from this trouble will be considerable. One field was observed in which 54% of the plants showed mosaic. Careful yield determinations will be made in the various districts to establish losses in yield under Utah conditions. Observations are being made also as to the possible wild hosts which might function in harboring the tomato mosaic virus.

"Wilt was found in 68% of the fields visited in the Counties of Boxelder, Weber, Davis, Utah, and Salt Lake. In most cases the disease was slight, however, a considerable number of the fields visited showed heavy damage wherein 25% to 75% decrease in yield might be expected. No difference was noted with respect to the prevalence of the wilt, between home-grown and imported seedling stock. Results from the survey indicate that Utah tomato fields are rapidly becoming infected and that vigorous action will be necessary to prevent further spread and further development of the trouble in fields already contaminated.

"Variety tests, during the year, in artificially infested soil shows the Norton variety highly resistant to at least one strain of Fusarium lycopersici. This variety is of good canning quality, which if combined with a sufficient degree of earliness will make it a possible substitute for local susceptible varities in contaminated soil."

CABBAGE DISEASES

Club root (Plasmodiophora brassicae)

Vermont: Moderate amount observed, 2% to 5%. (Gilbert, Oct. 1)

Connecticut: One or two reports. (Wilkinson, Oct. 15)

New York: There seems to be about the usual amount of club root. The total percentage of loss, however, is never large. Some of the disease has been observed in Suffolk, Nassau, Ontario, Cortland, Monroe, and Erie Counties. (Chupp, Oct. 15)

Black rot (Bacterium campestre)

Vermont: More prevalent than usual in market gardens in the vicinity of Burlington. (Gilbert, Oct. 11)

New York: There have been no reports of black rot up-state, excepting slightly in Ontario County. (Chupp, Oct. 15)

Blackleg (Phoma lingam)

New York: Very little in the state. Only one infested field found

up-state and that in Cortland County. According to the reports of the field men there is less than the average amount on Long Island. (Chupp, Oct. 15)

Leafspot (Alternaria brassicae)

New York: There has never been a less amount of leaf and pod spot up-state since records were kept. It was cloudy and rainy much of the time. Ritzema Bos writing in 1895 emphasized the theory that this fungus must have much sunlight for development. It would be interesting to know whether sunlight or the temperature was the greater factor. (Chupp, Oct. 15)

MISSISSIPPI REPORTS AN UNDETERMINED ROOT DISEASE OF COTTON

"Throughout the past season we have received several reports and specimens of cotton showing an arrested condition of the root system. Some of the plants have been of normal size and appearance with the exception of the root systems, which were very abnormal. Some of the plants have no tap root at all but have sent out long lateral roots. Others have short blunt roots which appear to have sloughed off and calloused over. We have been unable to find any disease present and have not determined the cause of this condition. Specimens were submitted to J. J. Taubenhaus and B. M. Duggar, but their findings are negative for a disease producing organism." (Neal and Wallace, Oct. 15)

COTTON LINT STAIN IN SOUTH CAROLINA

"During a spell of very wet weather of over two weeks duration which occurred just as cotton was getting well started at opening, practically all the lint in open bolls became stained by the growth of fungi, thus reducing the quality. In some cases the seed germinated also. (Ludwig, Oct. 15)

PEACH RUST

Since the date of the last Reporter two specimens of peach rust, Tranzschelia punctata, have been received, one collected by W. S. Fields at Santa Barbara, California, September 23, and one on wild cherry collected by C. A. Ludwig at Clemson College, South Carolina, October 31. Fields stated that the rust was abundant on all peach trees in a nursery where the material was collected, and Ludwig remarks that the specimens on wild cherry were collected at the edge of the woods near the College peach orchard, but that a

careful examination of the orchard failed to show any rust on the peach trees themselves.

From Florida G. F. Weber writes as follows on October 13:

"This disease is apparently no less severe at this time of the year than it has been in recent years. The infection is general and eventually results in the complete defoliation of the trees at this time of the year."

CROWN WART OF ALFALFA IN UTAH

The occurrence of alfalfa crown wart in Utah was announced in Plant Disease Reporter 8: 97, October 1, 1924. Further details concerning this occurrence are now available, as a result of a survey of alfalfa fields conducted by B. L. Richards during August and September in the counties of Salt Lake, Uinta, Utah, Davis, Boxelder, Weber, and Morgan.

"Survey of alfalfa fields shows the crown wart to be generally distributed throughout a number of alfalfa growing districts of Utah. Up to the present the trouble has been located in Salt Lake, Utah, Davis, Morgan, Weber, Boxelder, and Cache Counties. In Davis County out of one hundred fifty two fields visited, one hundred thirteen or 74.5% showed crown wart. Thirty-four of the one hundred thirteen fields diseased were heavily infested with from sixty to one hundred percent of the plants exhibiting warts. Of the 52 fields surveyed in Cache Valley, thirty-seven (71%) exhibited varying amounts of the disease. Fifty-four percent of the fields were found diseased in Morgan County. A somewhat similar condition would be found, no doubt, in the other counties visited, although insufficient data are available for determining averages.

"The degree of field infestation was found to be directly proportionate to the age of the crop. But few fields under three years showed the trouble, while an average of 85% of the fields four years of age were found to be diseased.

"A very close correlation was shown to exist between irrigation and the distribution of the fungus. Heavy soils also appeared to favor the development of the trouble. Casual survey of the Uinta and Iron Counties, also Ogden Valley, indicates that these areas are probably free from crown wart, on the other hand, a more careful survey may discover the trouble in these districts.

"The uniform distribution of crown wart with the degree of severity exhibited in the various districts indicates that we must regard this disease as one of the major if not the most important factor in the early deterioration of alfalfa fields in Utah. The relative importance of the alfalfa nematode in alfalfa districts as compared with crown wart is a problem for further study."

ALFALFA NEMATODE IN SAN JUAN COUNTY, NEW MEXICO

In Plant Disease Reporter 8: 19, July 1, 1924, it was announced that specimens of what seemed to be the alfalfa disease caused by Tylenchus dipsaci had been received from New Mexico. An examination of the material showed that organism to be the cause of the trouble, and during the summer a field investigation has been made by R. F. Crawford of State College, New Mexico. Under date of October 10, he gives the following summary of his observations:

> "I found the alfalfa nematode to be more widely distributed in San Juan County than I suspected from my first trip. Over one hundred fields were found to contain the alfalfa nematode. The heaviest infestation occurred around Bloomfield and Blanco. I visited this area in July and did not find any signs of the nematodes. The symptoms of the disease on the plants were very pronounced. The plants were yellowish in color and the stems were decidedly distorted, dwarfed and easily broken off. In this area the disease apparently has not occurred very long, as very few dead plants could be found. I visited over twenty five fields in this area and found the nematodes present in more or less abundance in every field.
>
> "A general infestation was found in the field between Aztec and Riverside. A large number of dead and dying plants occurred, which would indicate that the disease has been existing longer in this area. The area around La Plata had been suffering from lack of water and the alfalfa was not growing. However, several new fields were found to be attacked by the alfalfa nematode.
>
> "I made a careful survey of the Mesilla Valley, both below and above Elephant Butte Dam, but found no nematodes. During the trip I made to Las Vegas to look over the disease on the lettuce crop I had an opportunity to examined the alfalfa and found it free from any diseases. I do not believe that the alfalfa nematode occurs outside of San Juan County. As this county is isolated from the remainder of the state, the chances for the spread of the disease are very small."

ROOT ROT OF CORN

Kentucky: Two cases of death of corn plants in quite large areas in corn fields were noted. Many of the plants died when as tall as 18 inches and others when smaller. The soils appeared good. In each case the pH value indicated that the soil was slightly more acid in these areas than in the surrounding areas where corn was good. In one field which had been plowed out of soybeans, a portion of a row of corn was observed running right through the large diseased area, in which the plants were normal.

It was found that it had been planted where a row of beans had been crushed down in harvesting and had then been turned under. It is probable that the chief cause of trouble was soil toxicity rather than lack of fertility in these two fields, as in one field a true low fertility area was found in which the corn was making fair growth but was yellowed. (Valleau, Oct. 1)

Michigan: Many corn fields show complete death of certain stalks with ears full size but soft and immature. Very unusual, for root rots have not been a problem here except with sweet corn varieties. Up to 20% early dying. (Coons, Oct. 15)

MISCELLANEOUS ITEMS

Bacterial stalk rot of corn (Bacterium dissolvens Rosen) was reported October 1 by the Department of Plant Pathology of the Arkansas Experiment Station as being common and serious in some patches of sweet corn, particularly on Golden Bantam. Very little was noted on field corn, however.

Bean anthracnose (Colletotrichum lindemuthianum) caused only slight damage this season in Vermont, according to A. H. Gilbert.

Leaf blight of pear (Fabraea maculata) was generally prevalent but not so serious as last year in Delaware, and caused some damage in home orchards, but practically none in commercial orchards, in Michigan.

Powdery mildew of cherry (Podosphaera oxyacanthae) is very prevalent in Vermont (A. H. Gilbert, Oct. 11)

Aster yellows has caused total failure of some plantings, according to reports of several Michigan growers. One grower reports home-saved seed gave good plants, as opposed to failure with fancy seed. (Coons, Oct. 15)

Pop-corn disease of mulberry (Morus alba), caused by Sclerotinia carunculoides Siegler and Jenkins. During the past year specimens have been received from Texas, Georgia, and Louisiana. No previous report has been received from the last-named state.

Xylaria root rot of apple. Specimens of Xylaria from apple trees in Mercer County, Kentucky, were received from W. D. Valleau, October 22. About two to three percent of the trees in the orchard from which the specimen was taken are dying each year from this disease.

Urocystis occulta, rye smut, was sent in by C. W. Hungerford on October 18. Although this is a common disease in the eastern United States, this is the first specimen and first report that has been received by the Plant Disease Survey and Pathological Collections from Idaho and the Northwest.

ORANGE RUST OF BLACKBERRY

Attention has been called to the ambiguity of the statement, made on page 106 of the present volume of the Plant Disease Reporter, that the first authentic specimens of the short-cycled orange rust, Kunkelia nitens, are reported by Folsom of Maine and Dodge of the United States Department of Agriculture. This statement, of course, means that these are the first authentic specimens from Maine.

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